

Serial No. 09/985,905
Amdt. dated November 30, 2004
Reply to Office Action of September 7, 2004

Docket No. MRE-0037

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A fingerprint recognizing device comprising:
 - a transparent electrode layer to which one terminal of an AC power source is connected;
 - a light emitting layer formed on the transparent electrode layer and forming an electric field between the transparent electrode layer and a finger forming a ground contact when being contacted with the finger and emitting light by this electric ~~field~~ field for generating an optical fingerprint image according to ridge lines of a fingerprint image formed on the finger;
 - a plurality of patterned floating electrodes arranged on the surface of the light emitting layer at a predetermined interval and turned on/off to output the optical fingerprint image; and
 - a transparent insulating layer formed at the bottom of the transparent electrode layer and for transmitting the optical image generated from the light emitting layer.

2. (Original) The fingerprint recognizing device of claim 1, wherein the device further comprises an insulating layer formed on the upper portions of the floating electrodes in order to prevent the penetration by impurities between the plurality of patterned floating electrodes and make the floating electrodes stronger against a wet finger.

3. (Original) The fingerprint recognizing device of claim 1, wherein the device further comprises a dielectric layer formed between the patterned floating electrodes and the light emitting layer in order to increase the luminance of the light emitting layer.

4. (Original) A method for fabricating a fingerprint recognizing device comprising the steps of:

forming a transparent insulating layer using a transparent insulating material;

forming a transparent electrode layer on the transparent insulating layer using a transparent conductive material;

mixing 25~35 wt.% dielectric polymer paste, a 25~29wt.% retarder, and 30~50wt.% dopant-doped luminous powder and then forming a light emitting layer on the top of the transparent electrode layer using the mixture; and

forming a plurality of patterned floating electrodes on the surface of the light emitting layer using a conductive material so that they are spaced at a predetermined interval.

5. (Currently Amended) The method of claim 4, wherein the method further comprises a step for forming an insulating layer using an insulating material on upper portions of the floating electrodes so that the space between the plurality of patterned floating electrodes ~~electrodes~~ electrodes can be buried.

6. (Original) The method of claim 5, wherein the insulating layer is formed of a hydrophobic material.

7. (Original) The method of claim 4, wherein the method further comprises a step for forming a dielectric layer between the patterned floating electrodes and the light emitting layer in order to increase the luminance of the light emitting layer.

8. (New) The fingerprint recognizing device of claim 1, wherein the transparent electrode layer and the plurality of patterned floating electrodes are configured such that when a finger is placed over the patterned floating electrodes, an electric field is induced between the transparent electrode layer and the plurality of patterned floating electrodes.

9. (New) The fingerprint recognizing device of claim 8, wherein when a finger is placed over the patterned floating electrodes, the electric field strength is strongest between the transparent electrode layer and those patterned floating electrodes that are adjacent fingerprint ridges on the finger.

10. (New) The fingerprint recognizing device of claim 9, wherein an electric field induced between each individual patterned floating electrode and the transparent electrode layer causes the light emitting layer to output light that forms one pixel of an entire image of the fingerprint.

11. (New) The fingerprint recognizing device of claim 1, wherein the plurality of patterned floating electrodes are arranged in a lattice pattern.

12. (New) A fingerprint recognizing device, comprising:
a transparent insulating layer;
a transparent electrode layer formed over the transparent insulating layer, wherein one terminal of an AC power source may be connected to the transparent electrode layer;
a light emitting layer formed over the transparent electrode layer and configured to emit light when subjected to an electric field; and

a plurality of patterned floating electrodes arranged over the light emitting layer, wherein when a finger is brought adjacent the plurality of patterned floating electrodes, an electric field is induced between the transparent electrode layer and the plurality of patterned floating electrodes, and wherein the electric field strength is stronger under the individual ones of the plurality of patterned floating electrodes that are located adjacent a fingerprint ridge of the finger.

13. (New) The fingerprint recognizing device of claim 12, wherein an electric field induced between one of the plurality of patterned floating electrodes and the transparent electrode layer causes a portion of the light emitting layer underlying the patterned floating electrode to output a pixel of light.

14. (New) The fingerprint recognizing device of claim 13, wherein pixels of light output by those portions of the light emitting layer underlying patterned floating electrodes that are adjacent fingerprint ridges of a finger form an optical image of the fingerprint of the finger.

15. (New) The fingerprint recognizing device of claim 12, further comprising a dielectric layer formed between the plurality of patterned floating electrodes and the transparent electrode layer.

16. (New) The fingerprint recognizing device of claim 15, further comprising an insulating layer formed between and over the plurality of patterned floating electrodes.

17. (New) The fingerprint recognizing device of claim 12, further comprising an insulating layer formed between and over the plurality of patterned floating electrodes.

18. (New) The fingerprint recognizing device of claim 12, wherein the light emitting layer comprises approximately 25-35 wt.% of a dielectric polymer paste, approximately 25-29 wt.% of a retarder, and approximately 30-50 wt.% of a dopant-doped luminous powder.

19. (New) The fingerprint recognizing device of claim 12, wherein the plurality of patterned floating electrodes are arranged in a lattice pattern.

20. (New) The fingerprint recognizing device of claim 12, wherein the plurality of patterned floating electrodes are not electrically connected to any power source.